

Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Shift and swap: A method for generating Bell inequalities MARK HILLERY, UGUR GUNAY, Department of Physics and Astronomy, Hunter College of CUNY — A Bell inequality is a condition on measurement results, obtained in spacelike separated regions, that is obeyed by systems whose measurement probabilities all come from a single joint distribution (this is equivalent to saying that the probabilities are the result of a local, hidden-variable theory). The most well-known are the CHSH and CH inequalities in which there are 2 parties each making two possible measurements, and each measurement having two possible outcomes. We present a method based on shift and swap operators that can generate Bell inequalities. It does so by assigning high probabilities to a certain set of events, and this results in correlations that are stronger than can be obtained classically. We will present examples for several different scenarios, where a scenario is specified by the number of parties, the number of possible measurements for each party, and the number of outcomes for each measurement. We will also show how some of these scenarios can be described in terms of nonlocal games.

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Date submitted: 31 Jan 2014

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